Title: TRAFFIC STUDY WITH MOBILE DATA

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One of the most important aims for traffic engineering is planning infrastructures in an efficient way. Having traffic data in real time is an essential tool to achieve that purpose. The current methods to obtain traffic data are expensive, they need maintenance and it is impossible to study in real time because many times data is completed with surveys. So it is important to find other methods to obtain traffic data.

Nowadays, mobile technology is much extended in society. GSM network is the most important one. Land is divided in cells of different sizes. Its size depends not only on the amount of subscriptions, but also on the physic characteristics of the area of study. These cells join into location areas. All the operators have to know the position of their subscribers to offer them the services they have paid for every time they are requested. It is logic to think that it is possible to use mobile positions to describe traffic flow or the Origin-Destiny matrix, such other things.

The procedure is relatively easy. The first step is to know the surroundings of the location data to match each register with its origin place. They can be highways, freeways or other type of transportation such as trains. In this step non-movement mobile data are rejected. Many studies evaluate this point of the analysis.

When the location data is obtained, then it can be turned into vehicles data. This is the purpose of the present study. It is necessary to define the occupancy of the vehicles and to consider other statistics about the number of mobile phones in a vehicle during a trip. It is also important to know if location data are from one mobile operator or not.

The last step is to study traffic properties such as traffic flow. First of all, it is necessary to define the length of study (between two consecutives entries/exits) and its relationship with the location area length. This relationship is important in GSM network because it only detects the mobile location when mobiles change to another location area instead of changing to another cell. It is necessary to have mobile switched on to detect changes in transition cells.

This study has demonstrated that mobile method is useful to study traffic flow. It works better if the way where location data are taken has a few number of entries and exits and a low density of automatic methods. If the only aim is define origin /destiny matrix, the mobile method will obtain good results.

It is important the collaboration of traffic engineers but it is also important mobile operator's help. In the last years they have only participated in studies that have been paid by themselves.

The new generation technologies of mobile telephone will improve the study of accurate location data because of the smaller size of its cells. It will be necessary to provide new needs for their subscribers.